



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

## NOTICE OF ALLOWANCE AND FEE(S) DUE

60140 7590 08/18/2008

IMMERSION -THELEN REID BROWN RAYSMAN & STEINER LLP  
P.O. BOX 640640  
SAN JOSE, CA 95164-0640

EXAMINER

CRAIG, DWIN M

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 08/18/2008

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/801,643

03/17/2004

James F. Kramer

IMMR-VTI0010B

1680

TITLE OF INVENTION: SYSTEM AND METHOD FOR CONSTRAINING A GRAPHICAL HAND FROM PENETRATING SIMULATED GRAPHICAL OBJECTS

| APPLN. TYPE    | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | NO           | \$1440        | \$300               | \$0                  | \$1740           | 11/18/2008 |

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

60140 7590 08/18/2008

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**IMMERSION -THELEN REID BROWN RAYSMAN & STEINER LLP**  
P.O. BOX 640640  
SAN JOSE, CA 95164-0640

## **Certificate of Mailing or Transmission**

Hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

|                    |
|--------------------|
| (Depositor's name) |
| (Signature)        |
| (Date)             |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/801,643 03/17/2004 James F. Kramer IMMR-VT10010B 1680

TITLE OF INVENTION: SYSTEM AND METHOD FOR CONSTRAINING A GRAPHICAL HAND FROM PENETRATING SIMULATED GRAPHICAL OBJECTS

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|-------------|--------------|---------------|---------------------|----------------------|------------------|----------|
|-------------|--------------|---------------|---------------------|----------------------|------------------|----------|

nonprovisional NO \$1440 \$300 \$0 \$1740 11/18/2008

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|----------|----------|----------------|
|----------|----------|----------------|

CRAIG, DWIN M 2123 703-006000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_
- 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.                                                                                  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/801,643                                                                                       | 03/17/2004  | James F. Kramer      | IMMR-VTI0010B       | 1680             |
| 60140                                                                                            | 7590        | 08/18/2008           | EXAMINER            |                  |
| IMMERSION -THELEN REID BROWN RAYSMAN & STEINER LLP<br>P.O. BOX 640640<br>SAN JOSE, CA 95164-0640 |             |                      | CRAIG, DWIN M       |                  |
|                                                                                                  |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                                                  |             |                      | 2123                |                  |
| DATE MAILED: 08/18/2008                                                                          |             |                      |                     |                  |

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 507 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 507 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

**Notice of Allowability**

Application No.

10/801,643

Applicant(s)

KRAMER ET AL.

Examiner

Art Unit

DWIN M. CRAIG

2123

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/28/2008.
2. ☒ The allowed claim(s) is/are 9-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                            |                                                                                       |
|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date ____     | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|                                                                                                            | 9. <input type="checkbox"/> Other ____.                                               |

**EXAMINER'S AMENDMENT**

**And**

**REASONS FOR ALLOWANCE**

1. Claims 9-21 are allowed.

*Examiner's Amendment*

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Khaled Shami Reg. No. 38,745 on 8/11/2008.

The application has been amended as follows:

Claim 22 has been cancelled.

In claim 15 line 8 the phrase "instructions for: " has been changed to -- instructions that when executed by said computer system performs: --.

*Examiner's Reasons for Allowance*

3. The following is an examiner's statement of reasons for allowance:

While *Massie* teaches a simulated multi-articulated structure coupled to a physical multi-articulated structure and *Kramer et al.* teaches a simulated hand and U.S. Patent 5,524,187 to Feiner et al. teaches a simulated hand that discloses a displacement of multiple points, see Figures 2, 3 and 4(a) **none of these references taken alone or in combination with the prior**

**art of record disclose**, a multi-articulated structure flexing and being displaced in multiple points in synchronization with a simulated multi-articulated structure, specifically including:

(claim 9) "...a data processor, comprising data related to the spatial placement of said simulated impediment and constraints of said simulated impediment and said simulated-multi-articulated structure, for receiving said digitized signals and modifying said digitized signals using said data to generate a set of modified signals specifying the configuration and spatial placement of said simulated-multi-articulated structure, such that when said simulated-multi-articulated structure encounters said simulated impediment, the configuration and spatial placement of said simulated- multi-articulated structure is in part determined by the constraints causing said simulated-multi- articulated structure to flex, said flex being manifested in displacement of multiple points of the simulated-multi-articulated structure relative to a non-flex position thereof.”,

(claim 10) "...a data processor, comprising data related to the spatial placement of said simulated impediment and constraints of said simulated impediment and said simulated hand, for receiving said digitized signals and modifying said digitized signals using said data to generate a set of modified signals specifying the configuration and spatial placement of said simulated hand, such that when said simulated hand encounters said simulated impediment, the configuration and spatial placement of said simulated hand is in part determined by the constraints causing said simulated hand to flex, said flex being manifested in displacement of multiple points of the simulated hand relative to a non-flex position thereof...”,

(claim 12) "...a data processor, comprising data related to the spatial placement of said simulated impediment and constraints of said simulated impediment and said simulated graphical

Art Unit: 2123

hand, for producing modified signals from said digitized measured signals using said data and a simulated spring mass dashpot attached between first and second simulated hands, where the angles and placement of said first simulated hand uses said digitized measured signals and the angles and placement of said second simulated hand uses said modified signals and said first and second simulated hands are superimposed in the absence of said second simulated hand encountering said simulated graphical impediment, such that when said second simulated hand encounters said simulated graphical impediment, said second simulated hand is flexed and displaced from said first simulated hand and realigns with said first simulated hand when said simulated graphical impediment is removed at a rate regulated by said spring mass dashpot, said second simulated hand being depicted graphically as said simulated graphical hand...”,

(claim 13) “...a device comprising goniometers for measuring the angles of the joints of said physical hand, a tracking device for measuring the spatial placement of said physical hand relative to an inertial reference frame and means for mounting said device on said physical hand, said device providing digitized measured signals associated with the angles and the spatial placement; and a data processor, comprising data related to the spatial placement of said simulated graphical impediment and constraints of said simulated graphical impediment and said simulated graphical hand, for producing modified signals from said digitized measured signals using said data and a simulated spring attached between first and second simulated hands, where the angles and placement of said first simulated hand uses said digitized measured signals and the angles and placement of said second simulated hand uses said modified signals, and said first and second simulated hands are superimposed in the absence of said second simulated hand encountering said simulated impediment;”,

(claim 14) "...generating modified signals from said-digitized signals and said data specifying the configuration and spatial placement of said simulated-multi-articulated structure; and impeding the free motion of said simulated-multi-articulated structure when said simulated-multi-articulated structure encounters said impediment causing said simulated-multi-articulated structure to flex, said flex being manifested in displacement of multiple points of the simulated-multi-articulated structure relative to a non-flex position thereof...",

(claim 15) "...generating first data representing the configuration and spatial placement of said physical- multi-articulated structure; recording as second data the spatial placement of said impediment and constraints of said impediment and said simulated-multi-articulated structure; generating third data from said first data and said second data specifying the configuration and spatial placement of said simulated-multi-articulated structure; and impeding the free motion of said simulated-multi-articulated structure when said simulated-multi-articulated structure encounters said impediment causing said simulated-multi-articulated structure to flex, said flex being manifested in displacement of multiple points of the simulated-multi-articulated structure relative to a non-flex position thereof...",

(claim 16) "...a processor, comprising values related to the constraints of said simulated structure and said simulated impediment, receiving said information and modifying said information using said values to generate a set of modified signal's specifying the configuration and spatial placement of said simulated structure, such that the free motion of the simulated structure is impeded when encountering said simulated impediment causing said simulated structure to flex, said flex being manifested in displacement of multiple points of the simulated-multi-articulated structure relative to a non-flex position thereof...",



(claim 17) "...said sensor further configured to transmit a signal associated with the configuration and the spatial placement of the multi-articulated structure, the signal being configured to generate a set of modified signals specifying data values associated with a configuration and a spatial placement of a simulated multi-articulated structure displayed in a graphical environment, the set of modified signals configured to deform the simulated multi-articulated structure when a simulated interaction occurs between the simulated multi-articulated structure and a simulated object such that multiple points of the simulated-multi-articulated structure are displaced relative to a non-deformation position of the simulated-multi-articulated structure...", **in combination with the remaining elements and features of the claimed invention.**

It is for these reasons that Applicants' invention defines over the prior art of record.

**3.1** Dependent claims 11 and 18-21 are allowed for at least the reason that they depend upon an allowed base claim.

**3.2** Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

**4.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to DWIN M. CRAIG whose telephone number is (571)272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dwin McTaggart Craig  
AU 2123

/Paul L Rodriguez/  
Supervisory Patent Examiner,  
Art Unit 2123